Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) Portable apparatus for maintaining an *ex vivo* organ in a viable condition for transplantation, the apparatus comprising:

A. an organ container comprising an interior space for receiving an organ to be transported, an opening for passing an organ to be transported, and a lid for closing the opening;

B. a bubble remover comprising a headspace and a venting valve;

C. an oxygenator comprising a chamber for receiving perfusion fluid, a gas space for receiving oxygen, and a gas exchange interface allowing gas exchange between the chamber and the gas space; and

D. a perfusion loop comprising the organ container interior space, the bubble remover headspace, and the oxygenator chamber interconnected to provide fluid circulation;

E. ~~a pump configured for circulating a perfusion fluid through the perfusion loop; and an outer container sized and configured to contain~~ in which the organ container, the bubble remover, the oxygenator, and the perfusion loop~~, the pump, and a supply of oxygen in an operative relationship;~~ are permanently joined together in fluid-conducting relation to define a single, sterile, closed unit; and

F. in which the ~~organ container, the bubble remover, the oxygenator, and the perfusion loop are~~ single unit is movable into and out of ~~the outer container and into and out of~~ an operative relationship with ~~the~~ a perfusion pump while the perfusion loop remains closed.

2. (Currently amended) The apparatus of claim 1, in which the perfusion loop further comprises a flexible tube ~~and the pump comprises a peristaltic impeller for driving fluid flow in the flexible tube~~.

3. (Previously presented) The apparatus of claim 1, in which the perfusion loop further comprises a heat exchange surface.

4. (Previously presented) The apparatus of claim 3, further comprising a chiller configured for operative association with the heat exchange surface to cool a perfusion fluid circulating in the perfusion loop.

5. (Previously presented) The apparatus of claim 3 in which the chiller is a Peltier-effect thermoelectric heat pump.

6. (Previously presented) The apparatus of claim 5, in which the heat pump is adapted to selectively heat or cool the perfusion fluid.

7. (Previously presented) The apparatus of claim 3, further comprising a temperature control for controlling the temperature of a perfusion fluid in the perfusion fluid loop.

8. (Previously presented) The apparatus of claim 7, in which the temperature control is programmed to cool perfusion fluid in the perfusion fluid loop following a specified temperature-time profile.

9. (Previously presented) The apparatus of claim 8, in which the temperature control is further programmed to heat perfusion fluid in the perfusion fluid loop following a specified temperature-time profile, after cooling perfusion fluid in the perfusion fluid loop following a specified temperature-time profile.

10. (Previously presented) The apparatus of claim 4, in which the heat exchange surface of the perfusion loop is at least a portion of the organ container and the electric chiller is in heat-exchange contact with the heat exchange surface.

11. (Previously presented) The apparatus of claim 3, wherein the perfusion fluid loop further comprises a reservoir.

12. (Previously presented) The apparatus of claim 11, wherein a wall of the reservoir defines the heat exchange surface.

13. (Previously presented) The apparatus of claim 1, further comprising a processor programmed for processing data associated with the apparatus.

14. (Previously presented) The apparatus of claim 13, further comprising an input device for communicating to the processor the size and type of organ being transported in the apparatus.

15. (Previously presented) The apparatus of claim 13 in which the processor is programmed to adapt a parameter to suit the type and size of organ entered at the input device.

16. (Previously presented) The apparatus of claim 15, in which the parameter is oxygen partial pressure or oxygen flow rate.

17. (Previously presented) The apparatus of claim 1, further comprising a processor, in which the venting valve of the bubble remover is controlled at least in part by control signals from the processor.

18. (Previously presented) The apparatus of claim 17, further comprising a gas sensor for detecting the presence of gas in the headspace requiring purging, the processor being programmed to open the venting valve to vent gas when the gas sensor detects the presence of gas in the headspace requiring purging.

19. (Previously presented) The apparatus of claim 18, further comprising a gas sensor for detecting the absence of gas in the headspace requiring purging, the processor being programmed to close the venting valve when the gas sensor detects the absence of gas in the headspace requiring purging.

20. (Previously presented) The apparatus of claim 18, further comprising a pressure sensor for detecting pressure within the perfusion fluid loop and transmitting data reflecting the pressure to the processor.

21. (Previously presented) The apparatus of claim 1, in which the organ container, the bubble remover, and the oxygenator are disposable after a single use.

22. (Previously presented) The apparatus of claim 21, further comprising a flexible tube that is disposable after a single use joining at least two of the organ container, the bubble remover, and the oxygenator.

23. (Previously presented) The apparatus of claim 22, further comprising a reusable impeller engageable with the flexible tube for propelling perfusion fluid through the flexible tube.

24. (Previously presented) The apparatus of claim 21, comprising a portion defining the perfusion fluid loop that is disposable after a single use and a reusable portion not normally exposed to a perfusion fluid in the perfusion fluid loop.

25. (Previously presented) The apparatus of claim 1, in which the organ container is disposable after a single use.

26. (Previously presented) The apparatus of claim 1, further comprising a radio frequency identification tag installed in fixed relation to the organ container and configured to communicate at least one datum respecting at least one of the organ container and its contents.

27. (Previously presented) The apparatus of claim 26, further comprising a radio frequency identification tag reader for detecting data transmitted by the radio frequency identification tag.

28. (Previously presented) The apparatus of claim 27, further comprising a processor programmed for receiving data from the reader and controlling the apparatus responsive to the data.

29. (Previously presented) The apparatus of claim 28, in which the data represents a parameter selected from at least one of perfusion fluid pressure, perfusion fluid flow rate, perfusion fluid temperature, perfusion fluid temperature-time profile, perfusion fluid oxygen pressure, perfusion fluid carbon dioxide pressure, perfusion fluid nutrient level, perfusion fluid metabolite level, or the maximum remaining transport time allowed for the organ.

30. (Previously presented) The apparatus of claim 1, in which the organ container comprises a cover having an inside portion and an outside portion, the apparatus further comprising an adapter having a first portion defining a perfusion fluid inlet, a second portion adapted for connection to a vessel of an organ in the organ container for directing perfusion fluid into the vessel, and a quick connect-disconnect coupling for connecting the adapter to the inside portion of the cover.

31. (Previously presented) The apparatus of claim 1, in which the bubble remover is disposable after a single use.

32. (Previously presented) The apparatus of claim 1, in which the oxygenator is disposable after a single use.

33. (Previously presented) The apparatus of claim 1, in which the organ container, bubble remover, and oxygenator are mechanically joined, enabling them to move as a unit.

34. (Previously presented) The apparatus of claim 1, further comprising a support on which the perfusion loop and its components are carried together.

35. (Previously presented) The apparatus of claim 4, further comprising a coolant vessel configured to contain a coolant cooled by the chiller, wherein said heat exchange surface is disposed within the coolant vessel for contacting a coolant in the vessel.